# Deliver More Business Value with a Nutanix Private Cloud

Simple, secure, and scalable infrastructure combined with native protection, consolidated data services, and intelligent automation create the ideal foundation for a private cloud

WHY PRIVATE CLOUD?

Public cloud services such as Amazon Web Services (AWS) have reset business expectations for Enterprise IT. Traditional datacenters and legacy technologies are unable to deliver the ease of access and agility necessary to support the business in a timely manner, driving stakeholders elsewhere for the applications and services they need. The resulting shadow IT increases your company's total IT costs and risks, compromising your organization's security posture.

To deliver on business needs and accelerate digital transformation, IT teams need the simplicity and scalability of public clouds, paired with the security and control of on-premises datacenters—with the ability to satisfy strict SLAs and tight budgets. Built on the industry's leading hyperconverged infrastructure (HCI) software, the Nutanix private cloud solution bridges this gap.

Nutanix provides IT teams with a high degree of infrastructure and application automation, ensuring that your infrastructure investments keep pace with changing workload requirements. Simple, scalable infrastructure is combined with consolidated data services, intelligent operations, and native data protection. Security and governance are built into every facet of the solution.
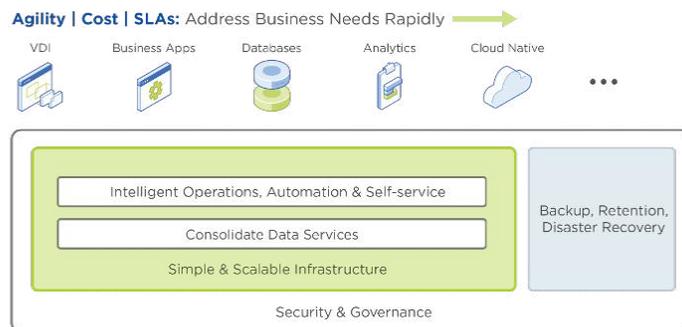
This guide explains some of the key design elements of the Nutanix Private Cloud solution to assist organizations as they consider and plan their private cloud deployments.
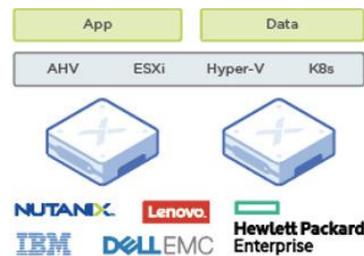
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SIMPLE AND SCALABLE INFRASTRUCTURE

Nutanix reduces the cost and complexity of legacy IT architectures built with separate storage, networking, and compute resources. With Nutanix HCI technology, simple building blocks create a powerful and flexible scale-out architecture.

You can start small and scale as needed without upfront guesswork or expensive overprovisioning. Scaling is predictably linear, so you can add compute and storage resources incrementally as needs grow—avoiding large, unexpected capital outlays.

In addition to Nutanix NX hyperconverged appliances, Nutanix Enterprise Cloud OS runs on hardware platforms from other leading IT vendors, so you can get the benefits of Nutanix software on your choice of server hardware. In addition to support for popular third-party hypervisors, such as VMware ESXi, Nutanix Private Cloud includes Nutanix AHV, a fully integrated, license-free hypervisor delivering high performance, availability, and simple management. Nutanix supports Kubernetes so you can run and orchestrate container-based applications on the same cloud platform as virtualized applications.

Because Nutanix solutions are 100% software-defined, we enable you to create a private cloud that is:

• Easy to manage: Deploy, expand, and upgrade quickly and non-disruptively from a single pane of glass
• Intelligent: Automate day-to-day operations and place apps and data intelligently to maximize performance
• Resilient: Secure and protect apps and data and proactively recover from failure with less time and effort

Nutanix integrates data management to enable new applications and services while reducing complexity and cost

A PLATFORM FOR DATA SERVICES

Your IT operations may be burdened with a variety of legacy storage systems to accommodate both structured and unstructured data. Not only is this expensive and challenging to manage, it limits insight into critical business data and makes data integration difficult or impossible.

Nutanix allows you to consolidate all your data services on the same platform that supports your compute resources, eliminating the need to architect and manage separate siloed storage solutions for your private cloud. A single, flexible and scalable storage pool simplifies provisioning and management while increasing capacity utilization.
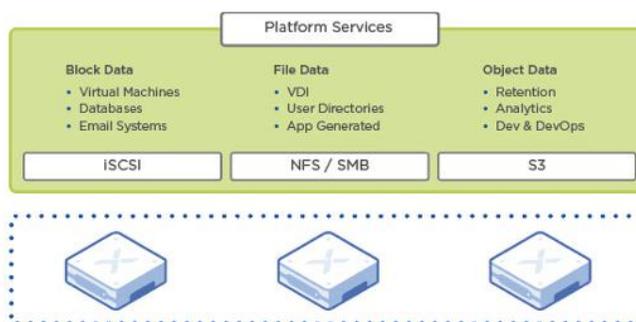
In addition to providing virtual disk storage at the hypervisor layer, Nutanix provides data services, addressing a wide range of application and workload needs:

• Present storage volumes as iSCSI disks to VMs and physical servers. Workloads that require shared storage—like Microsoft clustering and Oracle RAC—are easy to deploy and manage.
• Create NFS and SMB file shares as part of your Nutanix cluster to support VDI profiles, user directories, and other file-sharing needs, eliminating the need for separate NAS systems.
• Provide S3-compatible object storage for storing and archiving unstructured data and to address the needs of cloud native applications, with the ability to

INTELLIGENT IT OPERATIONS, AUTOMATION, AND SELF SERVICE

With most organizations devoting a significant percentage of their total IT spend to operational expenses, there's an urgent need to reduce IT complexity. By simplifying infrastructure management across the entire lifecycle, automating operations, and enabling self-service, Nutanix helps you create a private cloud that delivers the scalability, availability, and flexibility to enable business success.

Transform your private cloud operations, enable self-service, and meet the needs of developers and business teams.

Intelligent IT operations

With Nutanix, your private cloud benefits from streamlined IT activities across the infrastructure lifecycle. Intelligent, one-click operations take the pain and effort out of daily activities, including software installs, upgrades, and workload placement.
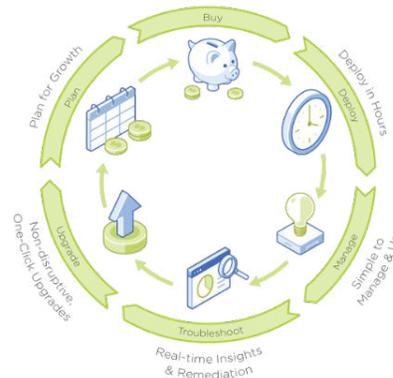
Integrate with ServiceNow

Many IT teams rely on ServiceNow for ITSM. Deep integration enables you to view HCI assets and launch Nutanix Calm blueprints from the ServiceNow service catalog, creating synergy between the two.

Infrastructure optimization: Nutanix provides advanced analytics and intelligent insights into your private cloud environment, so you can quickly identify under-utilized resources, overprovisioned VMs, and other cost sinks. You gain instant visibility into utilization, growth rates, and other information needed for IT planning.

Multi-cloud management: Nutanix brings one-click simplicity to hybrid cloud environments, enabling you to deploy and manage applications in nearly any cloud without losing control, visibility, or capabilities. Nutanix Xi Beam delivers multi-cloud governance with data-driven insights that make it simpler to choose the right location and infrastructure for each application based on expected costs, operational policies, and SLAs

Advanced automation: Once you've reduced the complexity of private cloud infrastructure management, the next step is to increase levels of integration and automation. Nutanix improves the efficiency of your private cloud by adding meaningful automation, self-service, and complete integration with development pipelines.

Enable autonomous IT

Nutanix X-FIT detects performance anomalies and identifies inefficiencies, triggering X-Play Playbooks. Simple but powerful approaches like this allow your operations to evolve from manual tasks and written procedures to autonomous IT operations.
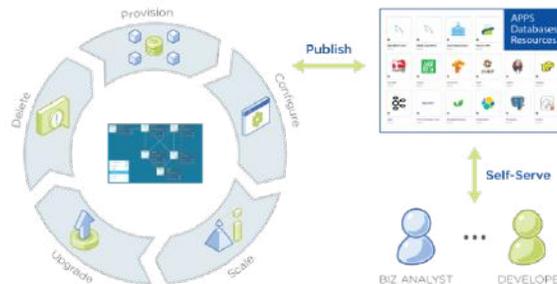
Flexible task automation: Nutanix Prism Pro provides a code-free, visual approach to task automation, enabling any administrator to build, maintain, and troubleshoot automations. Common admin tasks, like adjusting resources allocated to a VM in response to a constraint, are easily automated. Even the most complex, multi-step procedures can be turned into one-click operations

Self-service with no loss of control: Private cloud customers, such as developers and business teams, need self-service access to infrastructure and services to accelerate time to market. With Nutanix Calm, you can create blueprints that model applications and tasks and publish them to an internal marketplace or add them to the growing collection of pre-integrated, validated blueprints on the Nutanix Marketplace. Your application owners and developers can then request IT services from the marketplace whenever needed.

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Simplify dev pipelines

Integrate your CI/CD pipeline with advanced Nutanix automation to easily deploy complex applications across multiple sites and clouds.

Simplified CI/CD: Nutanix eliminates the complexity of test and development automation, allowing developers and administrators to work more efficiently. Your team can deploy and maintain a fully automated CI/CD pipeline with continuous application deployment across multiple on-premises and cloud locations.

BACKUP, RETENTION, AND DISASTER RECOVERY

Private cloud resiliency and business continuity are critical to prevent disrupting important applications and users. Nutanix software delivers far greater resiliency than clouds built on traditional infrastructure.

Native tools for backup and disaster recovery reduce complexity, increase levels of protection, and make it faster and easier to recover from disaster

Nutanix provides native data protection that can simplify your infrastructure, eliminate bottlenecks, and streamline backup management. In addition, we provide full integration with third-party backup solutions so that you can continue to use your preferred solution or standardize operations across your entire environment. Nutanix supports leading industry vendors and offers advanced integration via Nutanix Mine.

Recover to any point in time

Nutanix Time Machine technology automates database backup and recovery while providing advanced copy data management. It automatically discovers and maps your database and creates a protection schedule based on the specified SLA, enabling rapid, automated recovery to any point in time.

Nutanix offers a full range of native data protection and DR options. Nutanix Private Cloud can provide:
• Best-in-class infrastructure resiliency with self-healing architecture that keeps applications running in the event of failure
• Integrated, cross-hypervisor backup and DR
• Local, remote, and cloud backups with one-click data protection
• Synchronous, near-synchronous, and asynchronous replication for DR
• Flexible, cloud-based DR-as-a-Service with Xi Leap

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Integrated 1-Click Disaster Recovery

Primary Site — Secondary Site

ASYNC NEAR-SYNC METRO

Single Management UI

MONITORING, METERING, AND CHARGEBACK

A private cloud solution should give you the ability to monitor, meter, and chargeback actual costs to end users and departments. Nutanix can provide deep visibility into consumption patterns across your private cloud, as well as public cloud deployments. From a single pane of glass, you can optimize cloud spend, perform compliance checks, and provide 1-click remediation.

SECURITY AND GOVERNANCE

Ensuring that a private cloud meets security, corporate governance, and regulatory requirements can be a significant challenge. Nutanix provides native capabilities for security and governance that greatly simplify the process of ensuring infrastructure security.

Nutanix incorporates security into every step of our software development process, from design and development to testing and hardening. Nutanix security significantly reduces zero-day risks without slowing down our product evolution. With one-click automation and self-healing security models, ensuring security requires much less effort.

Nutanix Enterprise Cloud enables you to maintain a continuous security baseline across your private cloud environment and meet regulatory requirements more easily. Powerful security automation monitors the health of your storage and VMs, automatically healing any deviations from the security baseline.Nutanix utilizes and complies with the strictest international security standards, and an ecosystem of security partners makes it simple to add security services to your environment.

In private cloud environments—where you may not have full visibility and control over all activity—two valuable capabilities are data encryption and policy-based microsegmentation:

Data Encryption. Nutanix provides flexible methods for encrypting data at rest for compliance and security, including:
• Software-based encryption with local key management
• Self-encrypting drives with external key management
These methods can be combined to deliver optimal data-at-rest security.

Policy-based Microsegmentation. Nutanix delivers the ability to protect individual applications, and groups of applications, from internal and external security threats. Administrators can quickly implement fine-grained microsegmentation rules controlling east-west traffic between VMs. Policy definition is made simple with Nutanix's ability to visualize traffic flows within the private cloud environment.

Multi-cloud governance including cost optimization and security compliance to help you optimize and gain visibility and control.

Security designed to satisfy the most stringent government and business regulations,

SECURITY STANDARDS AND CERTIFICATIONS

SUITE B

FIPS Level 2 Validated 140-2

ISO 27001 Certified

Nutanix employs multiple security standards and validation programs It complies with the strictest international standards, including the SP800-53 guidelines, to assure governments worldwide that

RESOURCES AND GETTING STARTED

- Private Cloud
- Nutanix Karbon
- Private Cloud Demo
- Data Service Solution Brief
- Data Service Blog
- Volumes
- Files
- Objects
- Prism
- Prism Pro
- Calm
- Nutanix data protection & DR solutions
- Nutanix Mine: Secondary storage
- Xi Beam
- Security
- Flow

GETTING STARTED WITH NUTANIX PRIVATE CLOUD

The Nutanix Private Cloud solution is uniquely suited to meet your company's needs. Because Nutanix eliminates IT complexity, simplifies management, integrates data services, and improves data protection and security, it enables a private cloud to be more agile, more scaleable, and—ultimately—more effective. Nutanix Enterprise Cloud reduces the cost of deploying and operating a private cloud, while increasing service levels.

To begin designing your private cloud you can start by answering a few simple questions:

- Which hardware solution will you choose?
  - Nutanix NX Appliances
  - OEM platforms
  - Third-party servers
  (See Hardware Platforms for the latest information)

- What virtualization software will you choose?
  - Nutanix AHV, VMware vSphere, Microsoft Hyper-V

- What additional data services will your private cloud require?
  - File
  - Object
  - Block
  - Database

- What level(s) of data protection and DR are needed and how will you meet those SLAs?
  - Nutanix-native capabilities
  - Third-party software integration
  - Cloud services

- What additional security measures are required?
  - Network security
  - End-point security
  - Data security

Using the information discussed in this guide, you can begin thinking about and planning a private cloud that meets these needs. Use the links provided in each section to dig deeper into specific topics.

To learn more about how Nutanix can help you transform your private cloud visit nutanix.com/private-cloud. You can contact Nutanix at info@nutanix.com, follow us on Twitter @nutanix, or send us a request at www.nutanix.com/demo to set up your own customized briefing.

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